Determining lamprey species composition, larval distribution and adult abundance in the Deschutes River sub-basin

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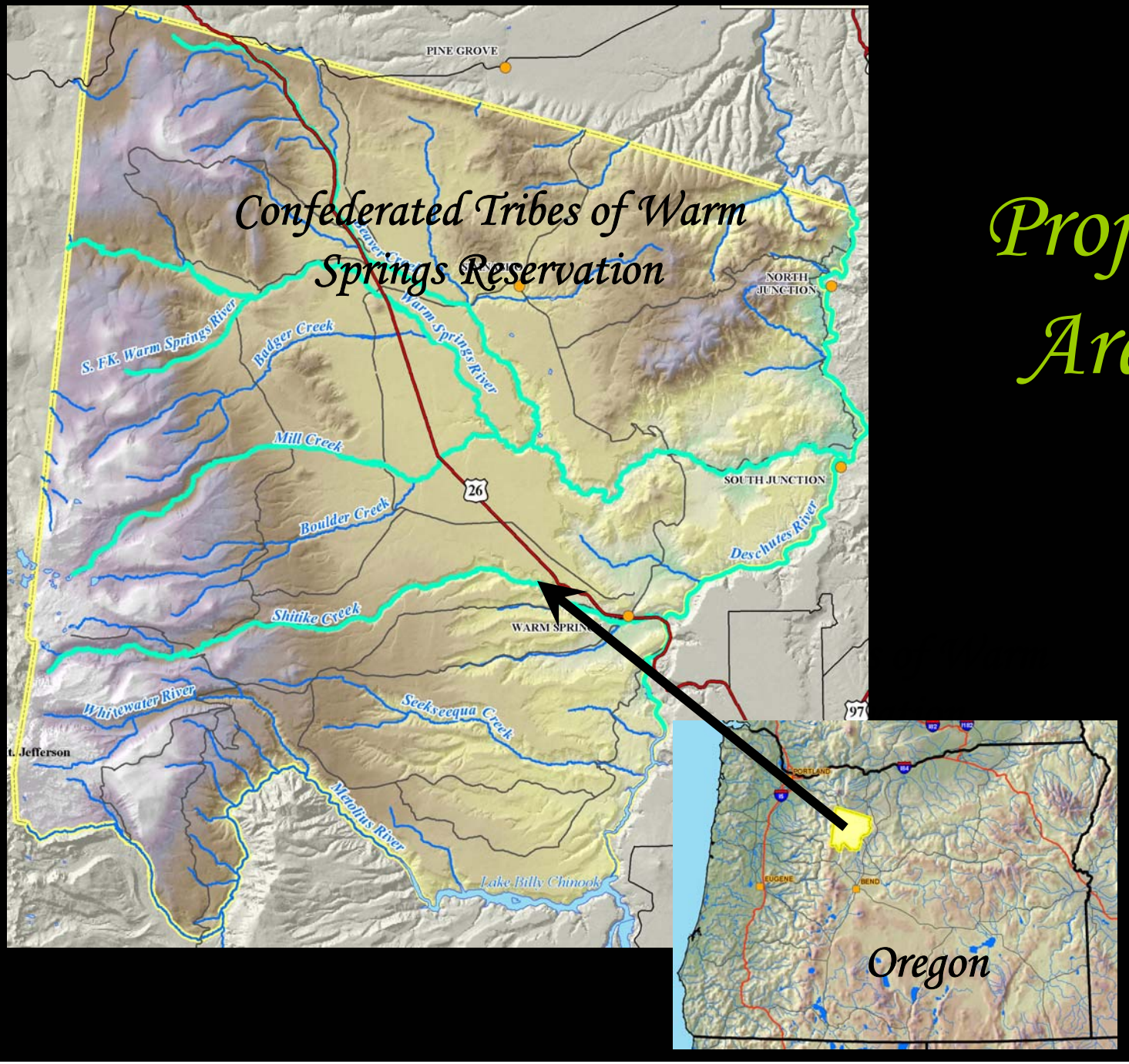


Project Area

Objectives

Objective 1: Determine larval distribution and associated habitat

Objective 2: Estimate the number of lamprey out-migrants by developmental stage

Objective 3: Evaluate the feasibility of estimating the escapement of adult lamprey and determine harvest rates at Sherar's Falls.


Larval Distribution and Associated Habitat

Methods

~ Randomly selected 1 sample site per 10 Rkm

~ May - September

~ Three-tiered sampling methodology

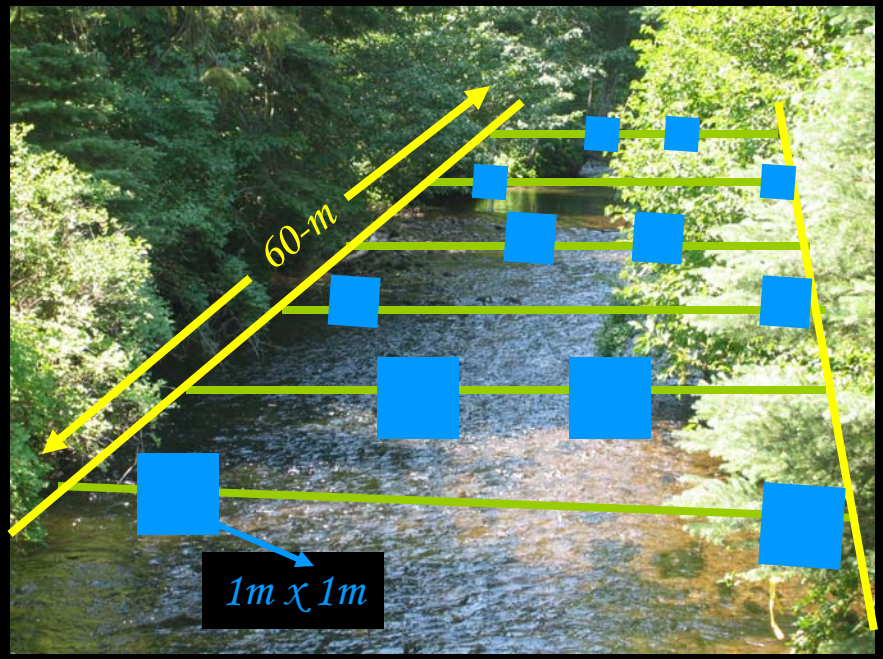
Methods – Habitat & Water Quality

Tier 2 – Transect

Wetted Channel Width
Bankfull Channel Width
Canopy Density

Tier 1 – Reach

Conductivity
pH
Water Temperature
Flood Prone Width
Channel Slope



Tier 3 – Sub-sample

Mean Water Depth
Water Velocity
Substrate Composition
Habitat Type

Methods – Lamprey sampling

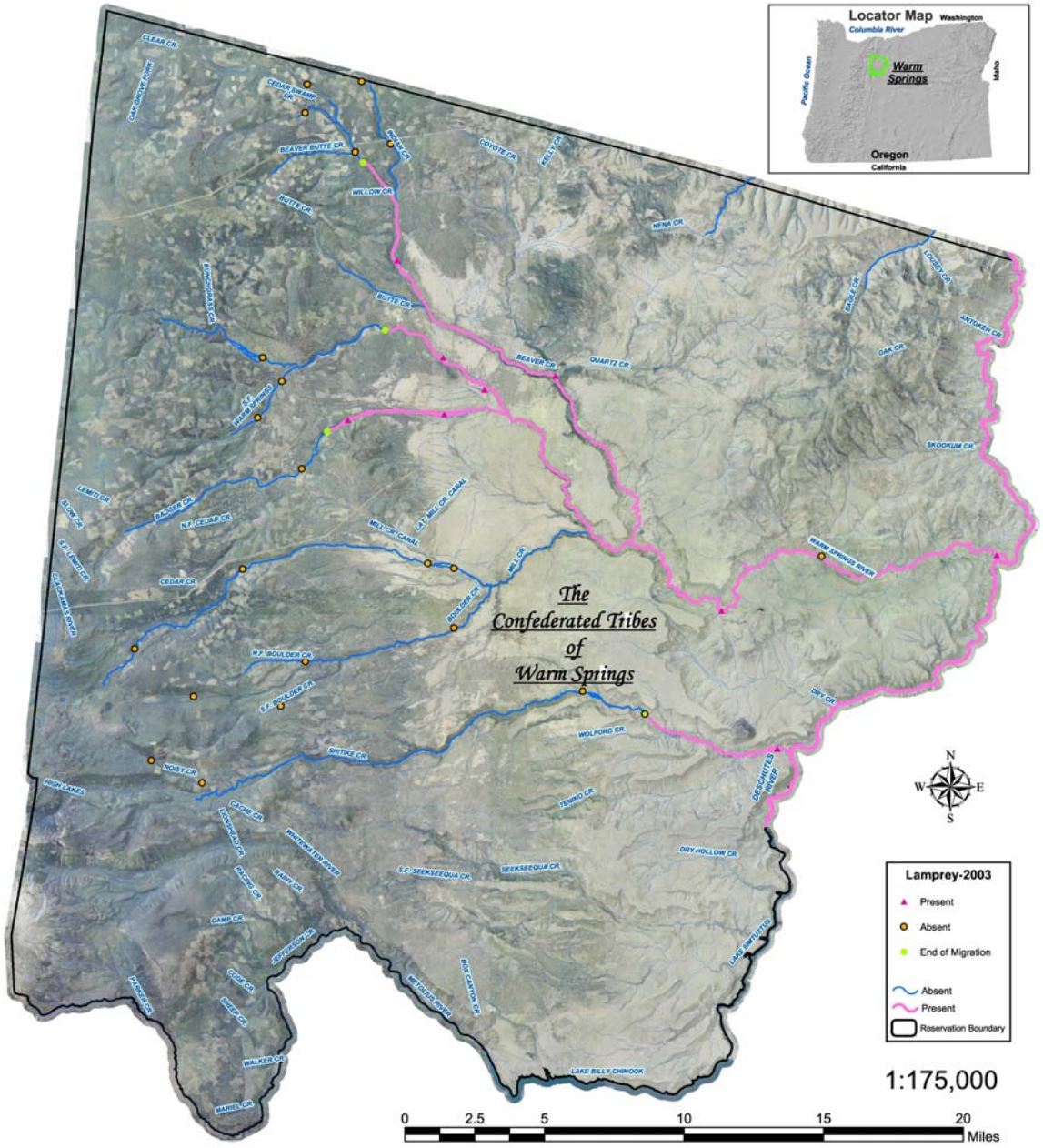
Tier 3 – Sub-sample

- Backpack electrofisher (AbP-2)
  - 2, 90-s samples
- Lamprey
  - Anesthetized, identified, weighed and measured
  - Returned to collection area

Results - Streams

~ 384 m^2 sampled

~ 4 of 13 streams sampled contained ammocoetes



Results – Lamprey

~ 131 ammocoetes collected

~ Total length range: 25 mm – 145 mm

~ Mean total Length: 77 mm

Regression	P-Value
Lamprey presence vs. Woody debris	0.000
Lamprey presence vs. Depositional Area	0.011

However , sample sizes were small!!

Plans for 2004

~ Larval distribution and habitat data collection

~ Remainder of perennial streams in the lower Deschutes

~ Mainstem Deschutes

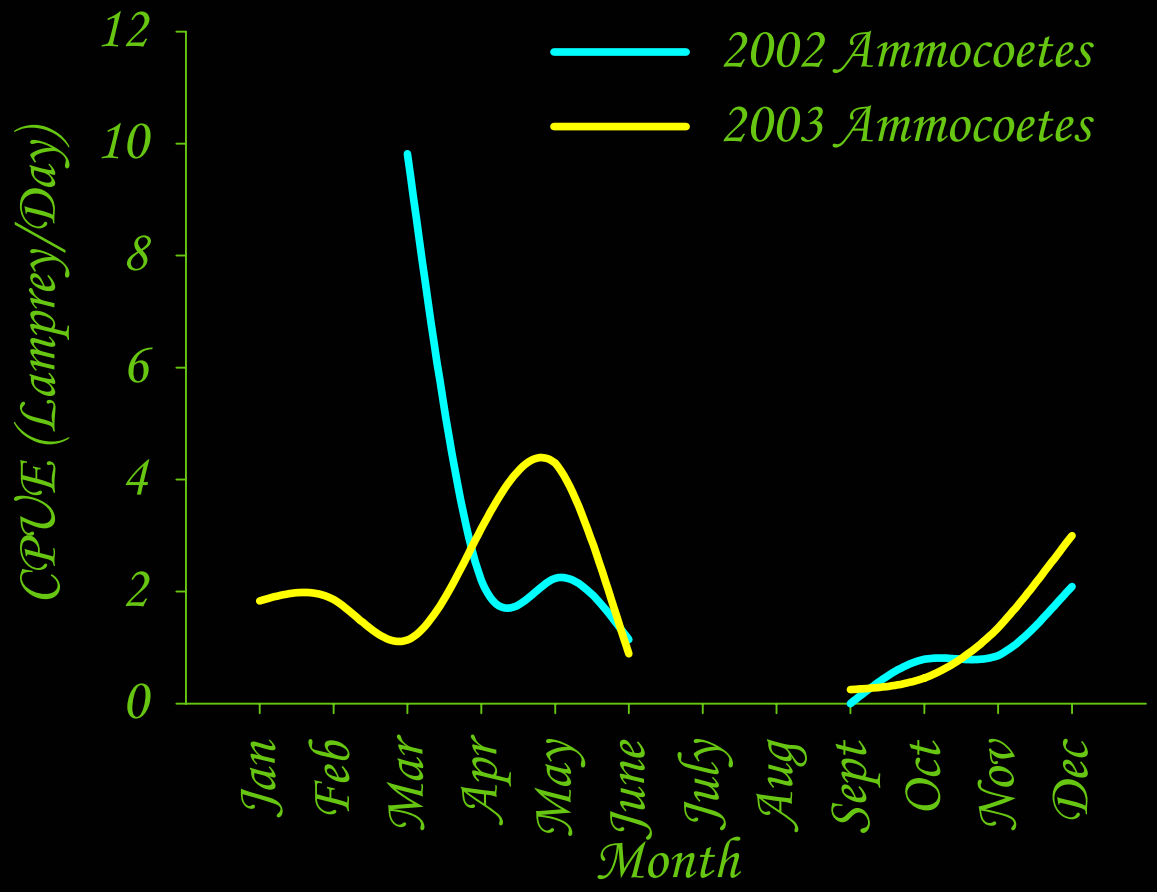
Estimate lamprey out-migrants and out-migration timing

Methods

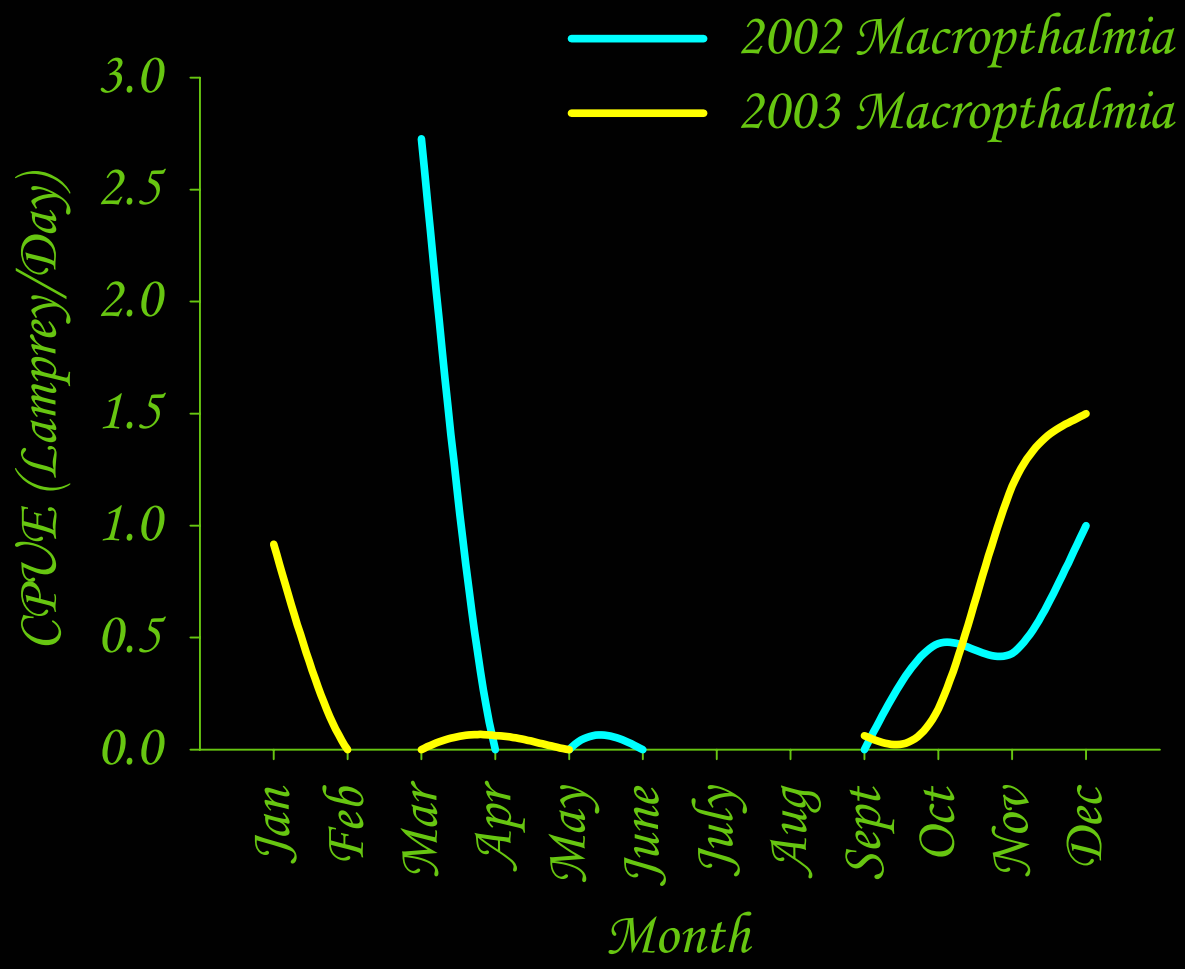
~ Fished 2 screw traps
  ~ 5 days/wk; 24 hrs/day

~ Collected lamprey
  ~ Anesthetized
  ~ Identified to species
  ~ Developmental stage
  ~ Length

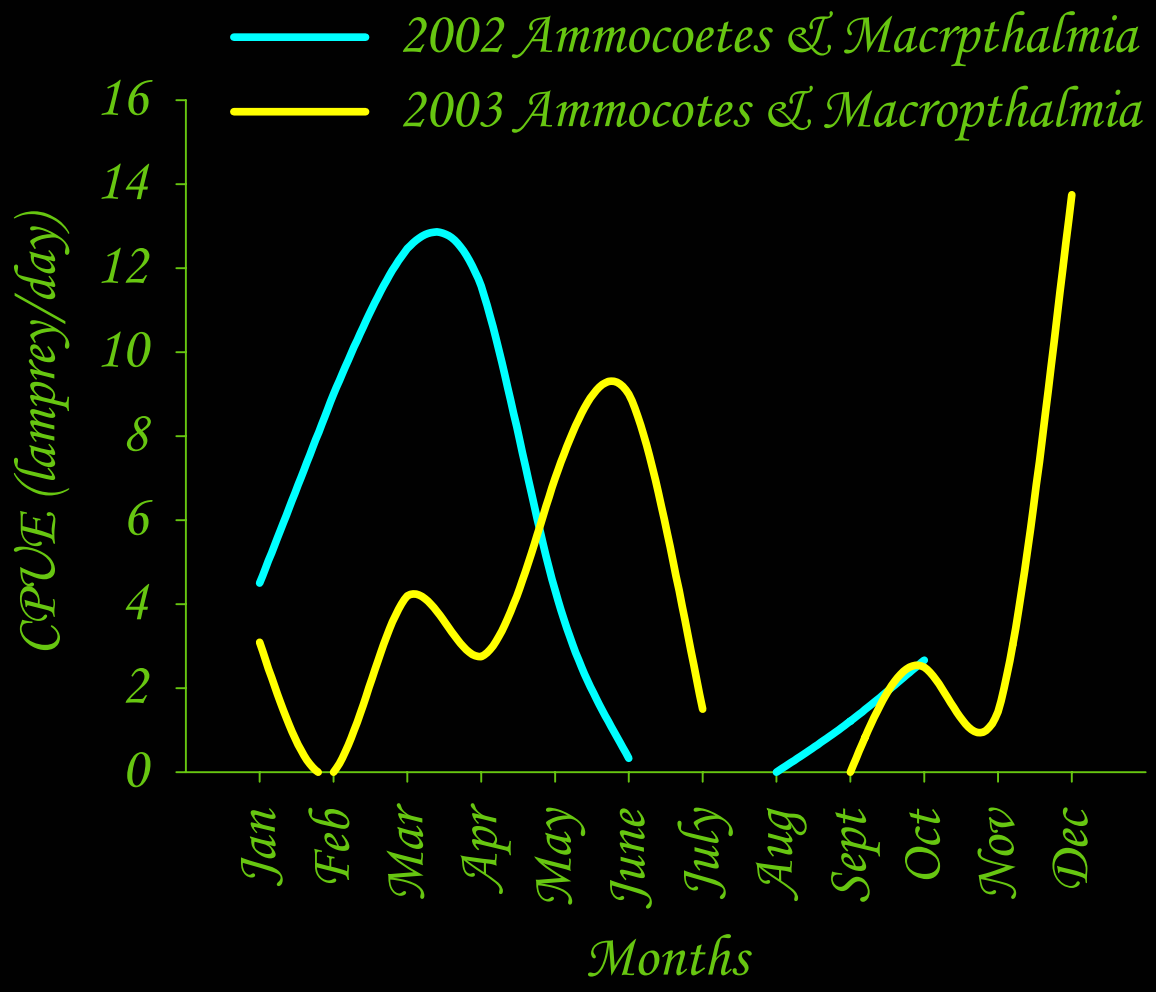
Results – Warm Springs Timing



Results – Warm Springs Timing



Results – Shitike Creek Timing



Trap efficiencies

~ Ammocoetes captured through electrofishing

~ Marked with elastomer

~ Placed in holding box

~ Checked after 24 hours

~ Multiple trap holding efficiencies

~ 0% holding efficiency

~ No out-migrant estimates completed

Plans for 2004

~ Continue collecting timing data

~ Modify existing traps

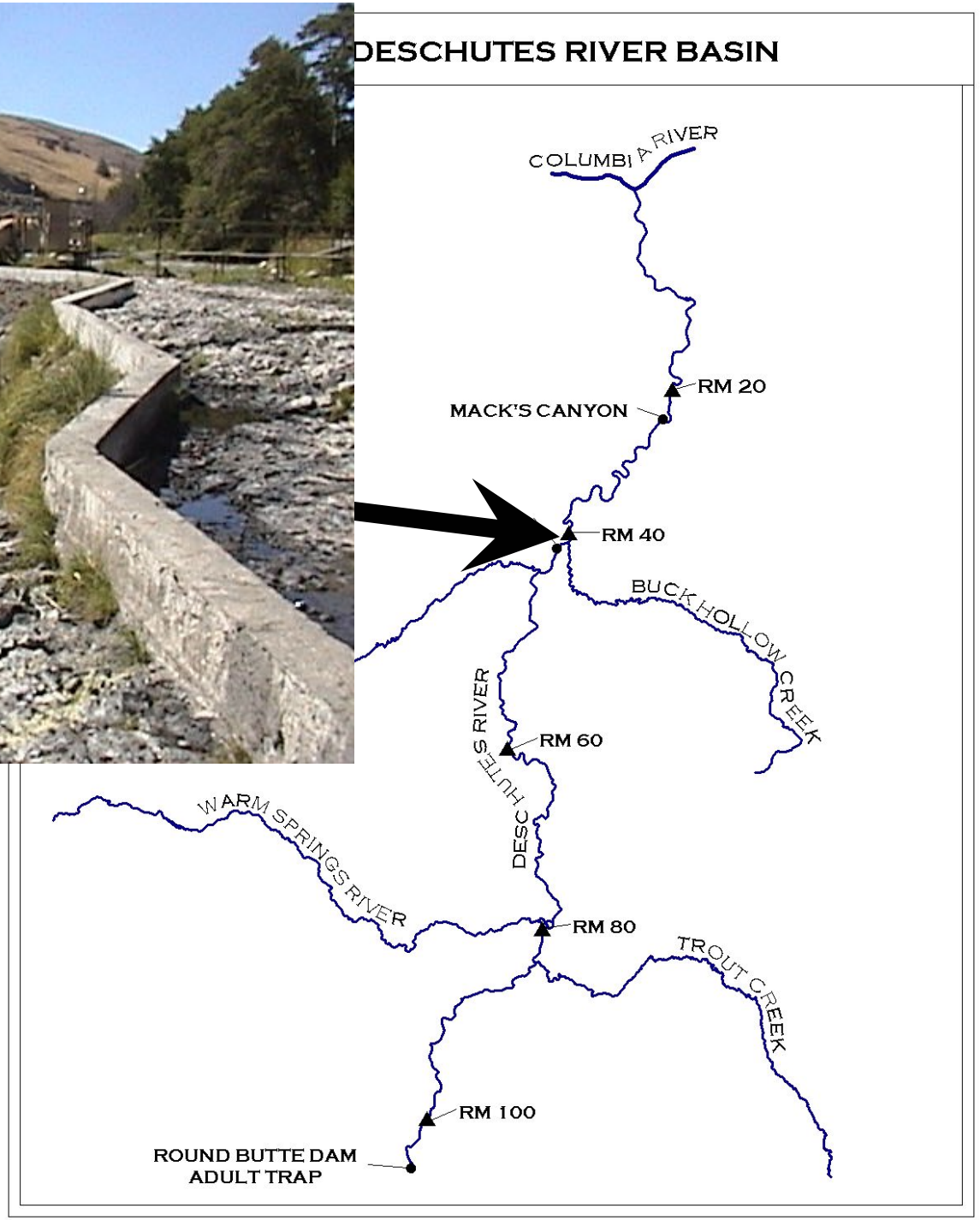
~ Conduct trap efficiencies

~ Mark-recapture to estimate out-migrant numbers

Tribal Harvest and Escapement Estimates

Picture courtesy of Lyman Jim

Sherar's Falls



Methods – Mark-recpature

"Lamprey pots" (USFWS)

~ Late-June – early-July

~ Multiple modifications

~ Fished various locations in fish ladder

Long-handled dip net

~ Late-June – August

~ Fished each pool 1 time/hr

~ Same location each time

Results - Tagging

Results – Recapture

35 Recaptures (17.6% recapture rate)

11 Netting; 22 Creel; 2 Tribal member returns

Primary Tag Retention 77%

Methods – Tribal Harvest

~ Access site creel survey

~ Mid-June - August

~ 4 weekdays; 1 weekend day

~ 1 hr. after sunset – 3 am

~ Creeled lamprey

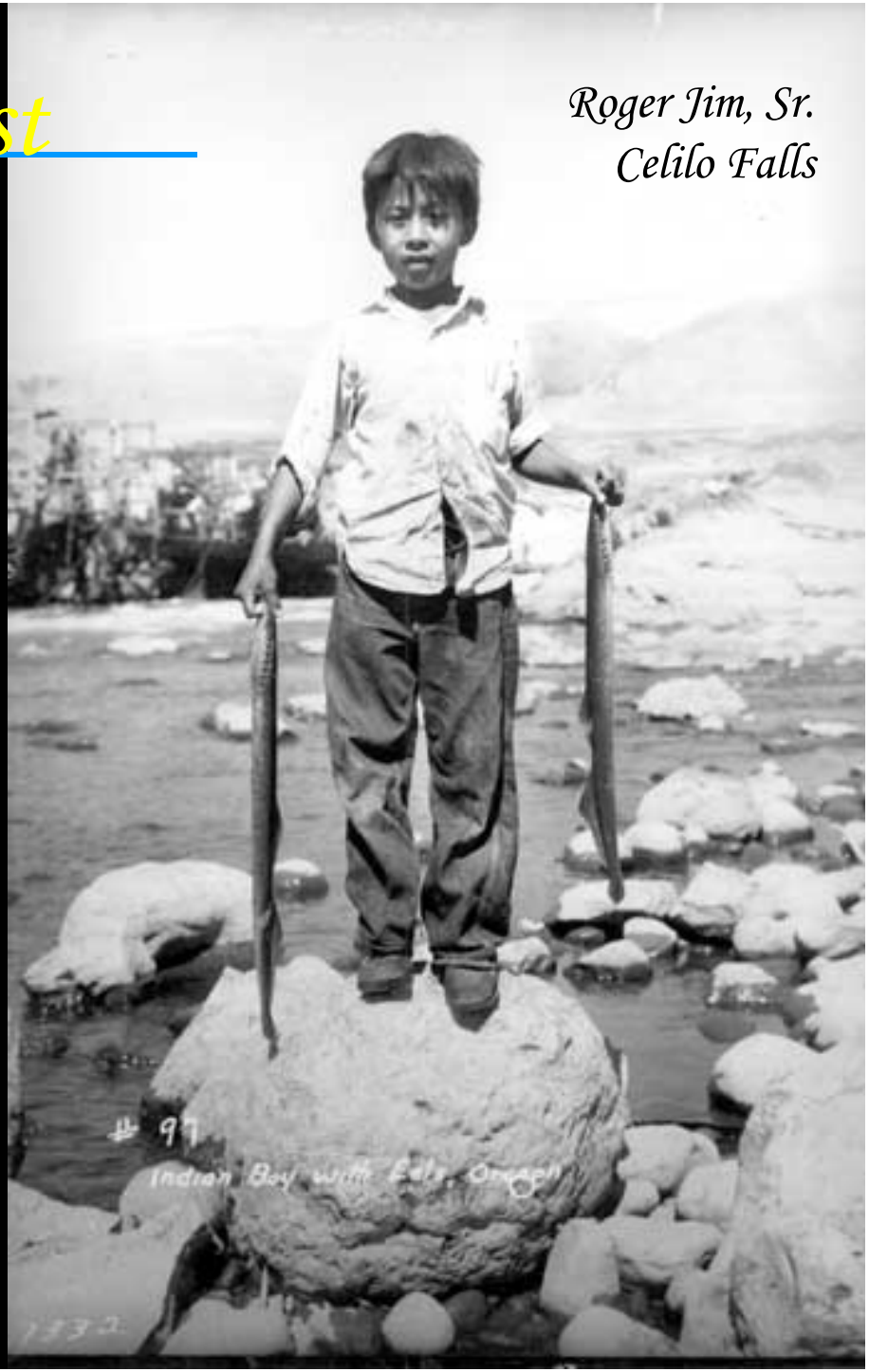
~ Examined for fin clip and floy tag

~ Total length measured

~ Creel data expanded to estimate total tribal harvest

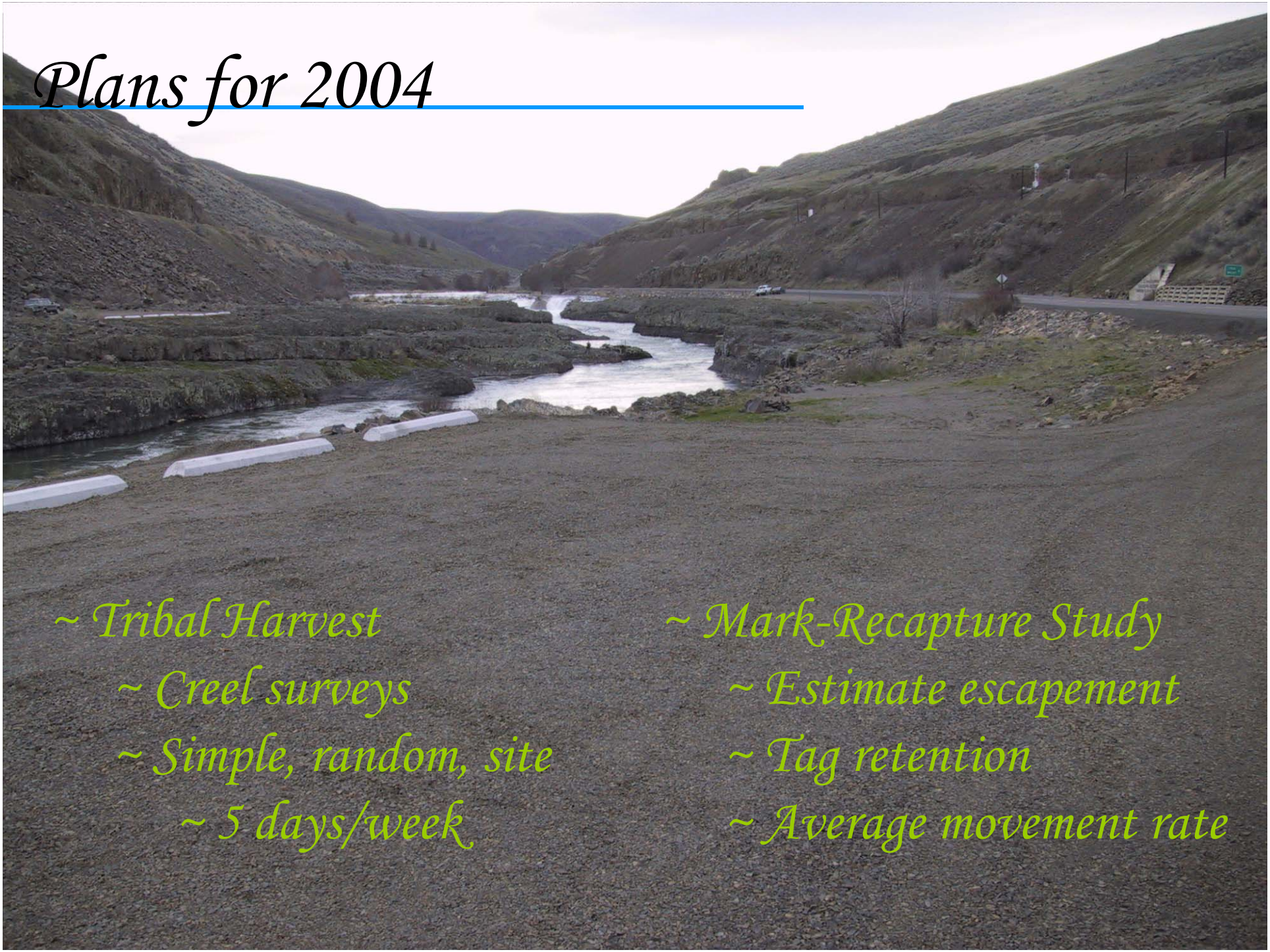
Results – Tribal Harvest

- 21 interviews conducted
- 614 lamprey collected
- 1,017 estimated harvest
  - 9.25 lamprey/hr
  - Mean length: 62 cm
  - Range: 50-74 cm



Roger Jim, Sr.
Celilo Falls

Plans for 2004



~ Tribal Harvest

~ Creel surveys

~ Simple, random, site

~ 5 days/week

~ Mark-Recapture Study

~ Estimate escapement

~ Tag retention

~ Average movement rate

Conclusions

Objective 1
Larval lamprey & Habitat

- ~ Lamprey were present in 4 of the 13 streams sampled
- ~ Complex habitat needs including depositional areas and woody debris
- ~ Small sample sizes made it difficult to find relationships with lamprey presence

Conclusions

Objective 2
Timing

Shitike

~ Peak movement: 2002 – March
2003 – December

WSR		Ammocoetes	Macropthalmia
~ Peak movement:	2002	March	March
	2003	May	December

Conclusions

Objective 3
Tribal Harvest & Upstream migration

Adult Escapement Estimate

- Marked 199 adult lamprey
  - Recaptured 35
  - Tag retention 77%

Tribal Harvest

- 21 creel interview conducted – 614 lamprey
- Estimated harvest 1,017

Questions?

We would like to thank Bonneville Power Administration for funding this project.